**Amendments to the claims:**

Please amend the claims as follows:

1. (Cancelled)

2. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to Claim [[1]] 19, wherein the at least one intermediate electrode is electrically connected to at least one of the doped semiconductor electrodes and has the same electrical potential as ~~said~~ the doped semiconductor electrode to which it is electrically connected.

3. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to Claim 2, in which the connection between the intermediate electrode and the doped semiconductor electrode is formed by a polysilicon-silicon crossover.

4. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to Claim [[1]] 19, wherein the intermediate electrode is connected to an external power source ~~in order~~ to set its electrical potential.

5. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to one of Claims [[1-4]] 19, 2, 3 and 4, wherein the conductor crossover has multiple levels containing a plurality of insulated intermediate electrodes situated, one above the other, between the connecting conductor and the semiconductor substrate.

6. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to one of Claims [[1-4]] 19, 2, 3 and 4, comprising at least one additional connecting conductor, ~~which is guided~~ extending over adjoining doped semiconductor electrodes, ~~for~~ and contacting ~~the~~ at least one of the doped semiconductor electrodes.

7. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to one of Claims [[1-4]] 19, 2, 3 and 4, wherein the doped semiconductor electrodes are p-doped, and the semiconductor substrate is n-doped.

8. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according one of Claims [[1-4]] 19, 2, 3 and 4, wherein the doped semiconductor electrodes are n-doped, and the semiconductor substrate is p-doped.

9. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to one of Claims [[1-4]] 19, 2, 3 and 4, wherein the semiconductor substrate is made essentially from one of the group consisting of silicon, polysilicon, germanium and gallium-arsenide.

10. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to one of Claims [[1-4]] 19, 2, 3 and 4, wherein ~~the connecting conductor is guided over~~ the doped semiconductor electrodes, over which the connecting conductor extends, have an annular topology.

11. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to Claim 10, wherein the connecting conductor ~~is guided~~ extends over multiple doped semiconductor electrodes which mutually surround one another.

12. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to one of Claims [[1-4]] 19, 2, 3 and 4, wherein the at least one connecting conductor ~~is guided~~ extends over multiple adjoining ~~drift~~ semiconductor detectors.

13. (Currently amended) A drift detector for X-ray spectroscopy having at least one ~~conductor crossover~~ multilayer semiconductor construction according to one of Claims [[1-4]] 19, 2, 3 and 4.

14. (Currently amended) A detector assembly for X-ray spectroscopy, comprising multiple drift detectors and having at least one ~~conductor crossover~~ multilayer semiconductor construction according to one of Claims [[1-4]] 19, 2, 3 and 4, ~~which is guided~~ the conductor crossover extending over at least two of the multiple drift detectors.

15. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to one of Claims [[1-4]] 19, 2, 3 and 4, comprising at least one additional

connecting conductor, which ~~is guided~~ extends over adjoining semiconductor electrodes to contact said element, ~~for contacting~~ an amplification element.

16. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to one of Claims [[1-4]] 19, 2, 3 and 4, additionally comprising a readout electrode, wherein the doped semiconductor electrodes are p-doped and the readout electrode is n-doped.

17. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to one of Claims [[1-4]] 19, 2, 3 and 4, wherein the doped semiconductor electrodes are made essentially from at least one of the group consisting of silicon, polysilicon, germanium and gallium-arsenide.

18. (Currently amended) The ~~conductor crossover~~ multilayer semiconductor construction according to one of Claims [[1-4]] 19, 2, 3 and 4, additionally comprising a substrate electrode, wherein the substrate electrode is made essentially from at least one of the group consisting of silicon, polysilicon, germanium and gallium-arsenide.

19. (New) In a multilayer semiconductor construction comprising at least one semiconductor detector and having a semiconductor substrate, at least two doped semiconductor electrodes situated on a first side of the semiconductor substrate, the improvement comprising:

(a) a conductor crossover having at least one connecting conductor situated on and forming a part of the multilayer construction and electrically connected to an element of the multilayer semiconductor construction and extending from said element across the at least two doped semiconductor electrodes to a further electrical connection;

(b) a first insulating layer provided on the first side of the semiconductor substrate; and

(c) at least one intermediate electrode situated between said connecting conductor and said first insulation layer, said at least one intermediate electrode covering a region of said semiconductor substrate between said at least two doped semiconductor electrodes and electrically shielding said semiconductor substrate between said semiconductor electrodes.

20. (New) The multilayer semiconductor construction according to Claim 19, wherein the element of the multilayer semiconductor construction to which the connecting conductor is electrically connected is a readout electrode of the semiconductor detector.

21. (New) The multilayer semiconductor construction according to Claim 19, wherein the element of the multilayer semiconductor construction to which the connecting conductor is electrically connected is a transistor formed in the multilayer semiconductor construction.

22. (New) The multilayer semiconductor construction according to Claim 19, wherein the semiconductor substrate, the at least two doped semiconductor electrodes, the connecting conductor, the element to which the connecting conductor is electrically connected, the first insulating layer and the at least one intermediate electrode are integrated features of an integrated multilayer semiconductor structure.

23. (New) The multilayer semiconductor construction according to Claim 19, wherein the at least one intermediate electrode is located in a region of the multilayer semiconductor construction that lies under the connecting conductor between the connecting conductor and the semiconductor substrate and shielding the semiconductor substrate from the connecting conductor where the connecting conductor crosses the semiconductor substrate.

24. (New) The multilayer semiconductor construction according to claim 23, wherein the at least one intermediate electrode comprises a plurality of intermediate electrodes completing a shielded path across the semiconductor substrate along which the connecting conductor extends.